

CURRENT LITERATURE

MINOR NOTICES

British lichens.—The first edition of part first of this work appeared in 1894. The catalogue was done by JAMES M. CROMBIE, who accomplished an excellent piece of work, viewed from the standpoint of the lichenists of his day and the generation preceding him. Part second was to have appeared shortly from the pen of CROMBIE, but his death prevented. Later the task was continued by ANNIE LORRAIN SMITH, and the second part appeared in 1911, following in part the methods of the author of the first part, on which it was an improvement as a whole. In 1918 the revision of part first by Miss SMITH¹ appeared.

The volume contains an introduction dealing with the nature of the lichen and a catalogue of the British lichens (pp. 520). The work of the original author has been thoroughly revised, and the volume contains much new material and marked changes in classification. There are usable keys, and the descriptions have dropped most of the antiquated phraseology of the lichenist of the recent past. They will be more acceptable, therefore, to the botanist of today, who necessarily has been somewhat appalled at the technical language of the lichenist. The 71 plates represent a large amount of work and will be found helpful to the student. Unfortunately, the author's conception of the nature of the lichen is wrong and therefore unfortunate in a work of first rank. In America, at least, and we believe in Europe as well, there has been a marked recent trend of opinion among students of lower plants to the effect that the dual hypothesis regarding lichens is untenable, and that the lichen must be a fungus after all, parasitic on an alga. However, the introduction on the nature of the lichen is a very minor feature of the work, and the publication of this revision gives us from the pen of one person a complete, creditable, and very useful catalogue of the British lichens. Although the catalogue in two volumes deals primarily with the lichens of a limited area, the work will be found useful in the study of the lichens of America and other regions.—BRUCE FINK.

American gall insects.—FELT² has published an excellent and usable key to the American gall insects. It is arranged with reference to the host plants on which the galls occur and will be of great value to every botanist who has

¹ SMITH, ANNIE LORRAIN, A monograph of the British lichens. Vol. I. Svo. pp. xxiv+520. *pls.* 71. *figs.* 11. The British Museum. 1918.

² FELT, E. P., Key to American gall insects. N.Y. State Museum Bull. 200. pp. 310. *pls.* 16. 1917.

occasion to collect and determine plants or to study abnormal plant growths. It is the only reasonably complete publication of the kind in America. There are a total of 1439 species, most of which can very readily be recognized by means of the key, the 250 text illustrations, and the 16 full page plates. The publication is indexed both with reference to the host and the parasite.—MEL. T. COOK.

North American Flora.—The sixth part of volume 22 contains the conclusion of Rosaceae by RYDBERG, including genera 54 to 57, much the largest genus being *Rosa*, with 129 species, 23 of which are described as new. The part closes with 26 pages of additions and corrections to the volume.

The first part of volume 32 contains the beginning of Rubiales by STANDLEY, 8 genera of the Rubiaceae being presented. Much the largest genus is *Rondeletia*, with 109 species, 8 of which are described as new. Among the remaining genera 8 new species are described.—J. M. C.

NOTES FOR STUDENTS

Secondary dormancy in seeds.—KIDD and WEST³ have continued the study of the controlling action of carbon dioxide on the germination of seeds of *Brassica alba*. In two previous papers by the senior author it has been shown that low concentrations of carbon dioxide inhibit the germination of seeds, and that temperature and oxygen pressure determine the concentration necessary to inhibit germination. In normal oxygen pressure 2-4 per cent carbon dioxide will inhibit germination at 3° C., while at 20° C. it requires 20-25 per cent. At 17° C. it requires 9-12 per cent carbon dioxide to inhibit with 5 per cent oxygen pressure and 20-25 per cent carbon dioxide with 20 per cent oxygen pressure. All seeds studied, except *Brassica alba*, germinate normally as soon as the carbon dioxide is removed, while *B. alba* remains dormant after the carbon dioxide is removed. The authors term this "secondary dormancy," in agreement with the usage of this term by CROCKER.

In the production of secondary dormancy the authors note the following general facts: (1) secondary dormancy is not produced if oxygen is absent during the primary period of inhibition or if carbon dioxide has been used in too high concentration; (2) conditions during the primary period of inhibition which prevent subsequent occurrence of dormancy are the ones that exercise injury on the radicle; (3) 100 per cent dormancy is obtained only within narrow limits of carbon dioxide and oxygen pressure. Secondary dormancy is not produced by a change in the permeability of the coats to gases or water, or to an increase in their breaking strength, but by a change in the embryo

³ KIDD, F., and WEST, C., The controlling influence of carbon dioxide. The production of secondary dormancy in seeds of *Brassica alba* following treatment with carbon dioxide and the relation of this phenomenon to the question of stimuli in growth phenomena. *Ann. Botany* 31:457-487. 1917.